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CATALYST HANDBOOK

WITH SPECIAL REFERENCE TO
UNIT PROCESSES IN AMMONIA
AND HYDROGEN MANUFACTURE

16546



1970

SPRINGER-VERLAG NEW YORK INC.
WOLFE SCIENTIFIC BOOKS/ LONDON-ENGLAND

HYDROCARBON-REFORMING CATALYSTS

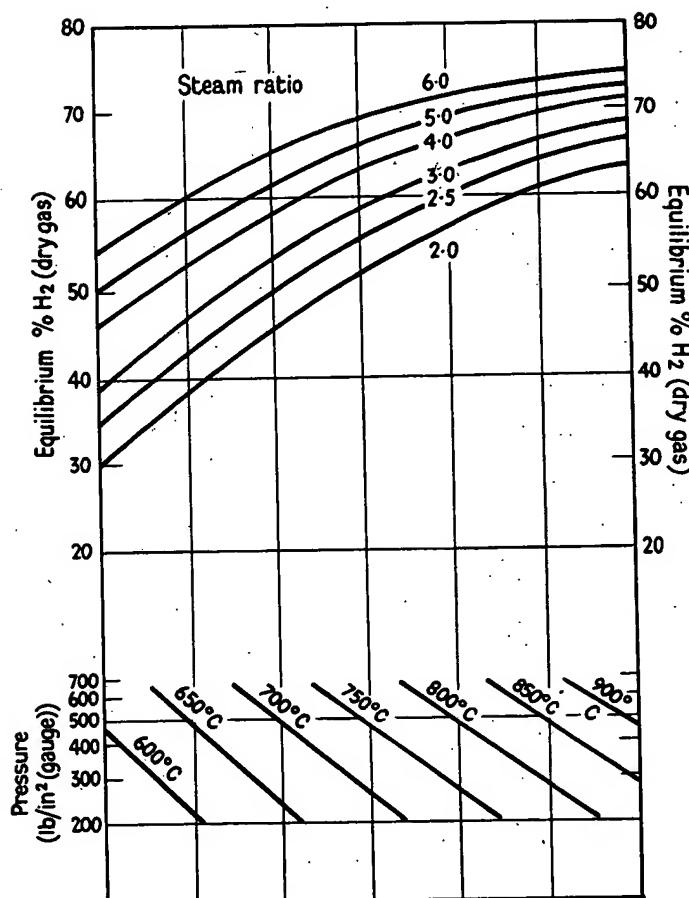
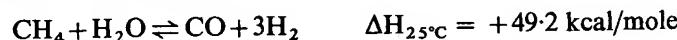


FIG. 35. Equilibrium concentration of hydrogen as a function of temperature, pressure, and steam ratio for naphtha.

Heats of reaction

The enthalpy change for the steam-reforming reaction varies with the reaction conditions.

The methane-steam reaction is always endothermic, as demonstrated by consideration of the reactions



Typical heats of reaction are given below in Fig. 36 for the naphtha-steam reaction proceeding to equilibrium under conditions of practical interest for naphtha $\text{CH}_{2.2}$.

The reaction is most endothermic at the limit when the whole of the carbon is reformed to give oxides of carbon together with hydrogen and becomes less